Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of Part 2 of the Commission's Rules	)	
To Allocate Spectrum Below 3 GHz for Mobile	)	ET Docket No. 00-258
And Fixed Services to Support the Introduction of	)	
New Advanced Wireless Services, including Third	)	
Generation Wireless Systems	)	
	)	
The Establishment of Policies and Service Rules	)	IB Docket No. 99-81
For the Mobile-Satellite Service in the 2 GHz Band	)	
	)	
Amendment of the U.S. Table of Frequency	)	
Allocations to Designate the 2500-2520/2670-	)	RM-9911
2690 MHz Frequency Bands for the Mobile-	)	
Satellite Service	)	
	)	
Petition for Rule Making of the Wireless	)	
Information Networks Forum Concerning the	)	RM-9498
Unlicensed Personal Communications Service	)	
	)	
Petition for Rule Making of UTStarcom, Inc.,	)	
Concerning the Unlicensed Personal	)	RM-10024
Communications Service	)	

Reply Comments of Sprint Corporation

Sprint Corporation hereby files its reply to comments submitted in response to the Commission's Notice of Proposed Rulemaking (NPRM) allocating spectrum below 3 GHz for advanced wireless services (AWS).[1] In the NPRM, the Commission seeks comment on how best to use the MSS spectrum reallocated in the associated *Third Report*

[1] *Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, Including Third Generation Wireless Systems*, FCC 03-16; ET Docket No. 00-258, (rel. Feb 10, 2003) ["Third NPRM"].

and Order as well as other bands previously proposed for AWS use; how and where to relocate the Multipoint Distribution Service (MDS); and whether to provide additional flexibility for the Unlicensed Personal Communications Service (UPCS) band spectrum.

Comments submitted in response to the NPRM supported establishment of the "G block" at 1910-1916 MHz paired with 1990-1996 MHz and no comments voiced concern that interference problems would arise if MDS were moved into that block. Sprint urges the Commission to relocate MDS to replacement spectrum at 1910-1916 MHz paired with 1990-1996 MHz as described by the Wireless Communications Association International (WCA) in its comments and in the MDS Industry Compromise, as this band offers the only option that will leave MDS licensees with useful spectrum.[2]

Discussion

1910-1920 MHz band paired with 1990-2000

The 1910-1930 MHz band is allocated internationally on a primary basis to the fixed and mobile services. In the United States, the 1910-1920 MHz portion of the band is used for asynchronous data UPCS devices, and the 1920-1930 MHz portion is used for isochronous voice UPCS devices, operating under Part 15 of the Commission's rules. In its NPRM, the Commission sought comment on whether it should re-designate all or a

[2] As a major provider of both MDS and PCS services, Sprint has a significant interest in the outcome of this proceeding. Sprint has invested over a billion dollars to obtain licenses (many of which were acquired by Sprint's predecessors in interest pursuant to auction) for spectrum in the 2150-2162 and 2500-2690 MHz bands, and lease MDS/ITFS channel capacity, use of the 2150-2162 MHz band is therefore particularly important to Sprint. Given Sprint's use of the spectrum and given the interference concerns inherent in all other relocation proposals, the only proposal that provides Sprint useful relocation spectrum is the one that relocates MDS channels 1 and 2/2A to paired spectrum at 1910-1916 and 1990-1996 MHz.

portion of the UPCS spectrum at 1910-1920 MHz for new fixed and mobile uses, perhaps pairing 5-10 MHz of this spectrum with the 1990-2000 MHz band (which is adjacent to the current PCS base station transmit band at 1930-1990 MHz and the remaining MSS uplink band at 2000-2020 MHz) to expand the existing Broadband PCS allocation, to allow for AWS applications, or as replacement spectrum for other services. The Commission also requested comment on particular proposals for using a portion of the bands as replacement spectrum: Nextel's proposal for exchanging its spectrum at 800 MHz for the 1910-1915 MHz and 1990-1995 MHz bands,[3] and WCA's proposal to relocate MDS Channels 1 and 2/2A to the 1910-1916/1990-1996 MHz bands and allow fixed or mobile use.[4]

In comments, the WCA urged the Commission to adopt its relocation proposal and pair the 1910-1916 MHz band with the 1990-1996 MHz band and allocate it as replacement spectrum for displaced MDS providers; enabling 1910-1916 MHz for upstream services and 1990-1996 MHz for downstream services. The WCA noted that its relocation proposal is the only comprehensive plan for relocating MDS that has been filed.[5] Sprint agrees with the WCA. While the Commission has repeatedly called out for serious proposals as to where to relocate MDS, other parties have focused on what they

[3] *Ex Parte* comments of Nextel in WT Docket 00-258, filed Aug 9, 2002. *See also* "Improving Public Safety Communications in the 800 MHz and," WT Docket No. 02-55.
[4] *See* WCA Letter from WCA, et al. to FCC Chairman Powell, July 11, 2002, in ET Docket 00-258, "Compromise Solution for Relocating MDS from 2150-2160 MHz."
[5] Comments of the Wireless Communications Ass'n Int'l , ET Docket No. 00-258 at 2 (filed April 14, 2003) ["WCA Comments"].

would like to do with the band from which MDS is being ousted, rather than offering solutions as to where MDS might be relocated.[6]

Not only does the G block offer MDS providers the only useful alternative spectrum, MDS operations in the G-block (operating under the PCS technical rules) would not pose interference risks to neighboring services. Broadband PCS licensees using the 1850-1910 MHz for upstream operations would not suffer interference from adjacent MDS upstream operations at 1910-1916, and nor would broadband PCS licensees using 1930-1990 MHz for downstream operations suffer interference from adjacent MDS downstream operations at 1990-1996 MHz.

In comments, Cingular supported allocation of 1910-1916 and 1990-1996 to MDS and urged the Commission to adopt the MDS Industry Compromise, stating that it offers a number of advantages:

> The compromise provides a number of advantages. First, it will take spectrum in the 1.9 GHz band from the underutilized asynchronous UPCS allocation and unused former MSS spectrum to resolve the MDS relocation dilemma. Application of Part 24 licensing rules will eliminate the interference concerns of adjacent broadband PCS operators and make the displaced licensees "good neighbors."[7] Second, while MDS licensees may lose a degree of system design flexibility under the Part 24 rules that require operations at lower power levels, MDS licensees will have added flexibility to provide fixed and mobile services. Further, MDS licensees will have increased regulatory flexibility, because unlike the MDS rules, the PCS rules generally do not require filings in connection with the construction and modification of facilities.[8]

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[6] *See, e.g.*, Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, including Third Generation Wireless Systems, 16 FCC Rcd 596, 619 (2001).

[7] *See* SPTF Report at 22 (recommending that future allocations be grouped based on mutually-compatible technical characteristics).

[8] Comments of Cingular Wireless LLC, ET Docket no. 00-258, at 4 (filed April 14, 2001) ["Cingular Comments"].

Similarly, Nucentrix Broadband Networks ("Nucentrix") and the Ad Hoc MDS Alliance fully support the WCA proposal.[9] The Ad Hoc MDS Alliance states: "the 1.9 GHz band is the most reasonable, and perhaps the only comparable spectrum to the 2150 MHz band, requires the least amount of overall relocation, and provides for the fastest deployment of new, advanced wireless services utilizing next generation of high speed wireless equipment."[10]

The Cellular Telecommunications & Internet Association ("CTIA"), Ericsson, Verizon Wireless ("Verizon"), and Motorola concur that a pairing of 1910-1915 MHz with 1990-1996 MHz is viable under Part 24 PCS rules.[11]

Not surprisingly, in their comments, UPCS interests such as UTStarCom, Ascom Tateco AB, UTAM, PHS MoU Group, and JSM Electronics, Inc., encourage the Commission to retain UPCS use in the 1910-1920/30 MHz band.[12] UTAM, however, acknowledges that a reallocation of 1910-1915 MHz is supported by the record and

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[9] Comments of Nucentrix Broadband Networks, Inc., ET Docket No. 00-258, at 11-12 (filed April 14, 2003) ["Nucentrix Comments"].

[10] Comments of Ad Hoc MDS Alliance, ET Docket No. 00-258, at 4 (filed April 14, 2003).

[11] Comments of Cellular Telecommunications & Internet Ass'n, ET Docket No. 00-258 at 2 (filed April 14, 2003) ["CTIA Comments"]; Comments of Ericsson, ET Docket No. 00-258 at 3 (filed April 14, 2003) ["Ericsson Comments"]; Comments of Verizon Wireless, ET Docket No. 00-258, at 5 (filed April 14, 2003) ["Verizon Comments"]; Comments of Motorola, ET Docket No. 00-258, at 2-4 (filed April 14, 2003) ["Motorola Comments"].

[12] UTStarCom Comments, ET Docket No. 00-258, at 3-4 (filed April 14, 2003); Ascom Tateco AB comments, ET Docket No. 00-258, at 2 (filed April 14, 2001); UTAM Comments, ET Docket No. 00-259, at 5 (filed April 14, 2001); PHS MoU Group Comments, ET Docket No. 00-258, at 1 (filed April 14, 2001); JSM Electronics Comments, ET Docket No. 00-258, at 4 ET Docket No. 00-258, at 1 (filed April 14, 2001); Comments of Stellar Holdings, ET Docket No. 00-258, at 2 (filed April 14, 2003;Comments of Siemens Corporation, ET Docket No. 00-258, at 2 (filed April 14, 2003).

would leave sufficient guard band to permit UPCS devices and new PHS systems to exist on a non-interference basis.[13]

Nextel's comments, of course, repeated its mantra urging the Commission to re-designate UPCS frequencies at 1910-1920 MHz to licensed services and assign the 1910-1915/1990-1995 MHz band to Nextel. While Nextel states that it is entitled to a nationwide license for the 1910-1915/1990-1995 MHz bands as a *quid pro quo* for its implementation and partial funding of relocation of operations from the 800 MHz, other comments repeated –and Sprint agrees with-- what has been stated many times in the past—that an award of the 1910-1915/1990-1995 MHz bands to Nextel is entirely extraneous to the public safety problem.[14]

As to the Commission's proposal that 1910-1920 MHz be paired with 1990-2000 MHz to expand the broadband PCS allocation, comments formed a unified front opposing it.[15] The WCA determined, through a study commissioned from Marconi Wireless entitled the "Marconi 1910-1920 MHz Report," that the minimum separation necessary to avoid by mobile transmissions at 1910-1920 MHz to base station transmissions in the 1930-1990 MHz band would be so great as to render the 1916-1920 MHz band unusable for PCS-like services.[16] Sprint agrees that interference implications of broadband PCS operations make them unsuitable inhabitants for a 1910-1920 MHz and 1990-2000 MHz band pairing.

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[13] *See* UTAM Comments at 5.
[14] *See*, e.g., Cingular Comments at 7,
[15] WCA Comments at 19; CTIA Comments at 3-4; Cingular Comments at 8; Ericsson Comments at 5-6; Verizon Comments at 5-6; Motorola Comments at 4-6.
[16] *See* WCA Comments at 19, citing WCA Comments Attachment B, "Marconi 1910-1920 MHz Report."

The 2155-2160 MHz and 2165-2180 MHz band

The Commission's NPRM sought comment on making a 10 MHz block at 2155-2165 MHz, which would include the 2155-2160 MHz MDS band, available for new services, including AWS. It also sought comment on the best use for the 2165-2180 MHz band, which is currently allocated for MSS downlinks and used for fixed service, and where MDS operations at 2150-2160/2 MHz might be relocated, including whether MDS could be relocated to the 2165-2180 MHz band, or adjacent to the Broadband PCS bands. The Commission noted that other options also exist, including allowing MDS licensees to retain the 2155-2160 MHz band and adding a contiguous allocation starting at 2160 MHz to replace the spectrum reallocated from 2150-2155 MHz.

In its comments, the WCA explained that because the 2110-2155 MHz and 2180-2200 MHz bands will both likely be used for base station transmissions, 2155-2180 MHz will not be available for MDS. Furthermore, it noted that MDS can not operate in a contiguous 12 MHz of any of the Commission-identified spectrum, because MDS operations involve base station transmission of video and data services, for customer-to-base transmissions in connection with FDD data services, or for stand-alone TDD services in which both upstream and downstream transmissions occur over the same spectrum. The WCA points out that because a station used for customer-to-base transmissions located in proximity to the spectrum used for base station transmissions inevitably results in interference, use of 12 MHz of contiguous spectrum for MDS is not feasible.[17]

[17] WCA comments at 25.

In its comments, Ericsson stated that it is necessary to relocate MDS to spectrum that is comparable to the 2150-2160/2162 MHz band. Implicitly recognizing that the G block offers comparable spectrum, Ericsson stated that "in light of the number of demands on the G band including Nextel, MDS, and auction requests, it is appropriate to identify an additional suitable band." Ericsson recommended that the Commission move MDS into a paired band comprising 2020-2025 MHz as the uplink and 2175-2180 MHz as the downlink. Ericsson justified its recommendation as consistent with international allocations because the uplink portion of the band is adjacent to the MSS/ATC allocation and its downlink is adjacent to both the MSS/ATC allocation and AWS, which corresponds to the international allocation for the terrestrial component of advanced services in 2110-2170 MHz."[18]

While Sprint appreciates that Ericsson actually attempted to suggest suitable spectrum for MDS relocation, it nevertheless falls short of identifying a workable alternative to the G block. Ericsson failed, for example, to address the likely interference which broadcast Auxiliary Service ("BAS") operations would cause to the adjacent 2020-2025 MHz band. As stated by both the WCA and the Society of Broadcast Engineers in their comments,[19] BAS will cause substantial interference to any PCS-like service, which would include AWS, or MDS service, in the 2020-2025 MHz band.

Similarly, Ericsson failed to consider the interference potential of MDS operations relocated to 2170-2180 MHz with MSS portable receivers operating in the 2180-2200 MHz band. As has been discussed in several previous submissions in this

[18] *See* Eriksson Comments at 8.
[19] *See* WCA Comments at 23, Comments of Society of Broadcast Engineers ET Docket No. 00-258, at 3 (filed April 14, 2003).

docket, MDS can not be relocated to spectrum in the 2165-2180 MHz band without requiring stringent interference protection on the part of adjacent operators.[20] MDS operations in this band could include upstream data services using first generation FDD technology or up-and-down stream data services using next generation, TDD-based technology, putting upstream traffic between downstream AWS and downstream MSS/ancillary terrestrial component (ATC) traffic in adjacent bands. MDS at 2170-2180 MHz would suffer and cause interference to MSS/ancillary terrestrial component (ATC) downstream operation at 2189-2299 MHz. MDS at 2155-2167 would suffer and cause interference to AWS downstream operation in the 2110-2155 MHz band.[21] In its comments, Cingular described the interference problem as follows:

> For example, a typical MDS base station operates at a maximum Equivalent Isotropically Radiated Power ("EIRP") of 2,000 Watts for an omni antenna or 7,943 Watts EIRP for a sectored antenna. To provide the MSS receiver with an adjacent channel interference protection limit of -151 dBW/m2/Hz,[22] a separation distance of 182.5 kilometers would be required, assuming free space path loss. Such a large separation distance would preclude viable MDS systems given current MDS system configurations. Further complications would arise if MDS licensees attempted to use time division duplex technologies in this band. Accordingly, a viable MDS system at 2170-2180 MHz is technically problematic and unworkable."[23]

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[20] *See, e.g,* Comments of Wireless Communications Ass'n Int'l, WT Docket No. 02-353 (filed Feb 7, 2003); Reply Comments of Wireless Communications Ass'n Int'l, WT Docket No. 02-353 (filed March 14, 2003); Letter from BellSouth Corp, *et al,* ET Docket No. 00-258, IB Docket No. 01-185, ET Docket No. 95-18 (filed Sept. 5, 2002). See also LCC Engineering Statement at 6.

[21] LCC Engineering Statement at 8-9, 13-15.

[22] *See*, e.g.*, Establishment of Policies and Service Rules for the Mobile Satellite Service in the 2 GHz band,* IB Docket No. 99-81*, Report and Order*, 15 F.C.C.R. 16127, 16195 ¶¶ 158-60 (2000)*; Amendment of Parts 21 and 74 to Enable Multipoint Distribution Service and Instructional Television Fixed Service Licensees to Engage in Fixed Two-Way Transmissions*, MM Docket No. 97-217, Report and Order, 13 F.C.C.R. 19112, 19138 ¶ 49 (1998).

[23] Cingular Comments at 6.

As can be seen by the above discussion, the G block offers not only desirable replacement spectrum for MDS in terms of its own operational needs, but it also promises to be the only band that will allow MDS to operate free from interference implications vis-à-vis neighboring services.

Conclusion

Comments submitted on the Commission's NPRM make clear that, of the many options presented by the Commission's NPRM, none but the G-block at 1910-1916 MHz and 1990-1996 MHz offers truly comparable operational characteristics that will permit MDS to function without interfering with, or experiencing interference from, its neighbors. Sprint urges the Commission to allocate the 1910-1916 MHz and 1990-1996 MHz bands to MDS services.

Respectfully submitted,

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By_____/s/_____

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